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## GAUZE AS A MATERIAL FOR DRAINAGE.\*

BY L. GRANT BALDWIN, M. D.,

Gynæcologist to St. Peter's Hospital, Brooklyn.

Perfect and well-managed drainage, even in a case not necessarily requiring it, will not increase our mortality, but its absence will surely delay convalescence, if not be the direct cause of death in a case demanding it, and making an unhappy ending to an otherwise successful and painstaking operation.

That there is no entirely satisfactory method of draining the abdominal or pelvic cavity is certain from the various methods and materials used in this city alone. Different men's conception and application of the same methods also differ widely. Two or more ways of working may be equally good, and the one to be adopted will depend entirely upon the individual worker.

All will agree, I venture, that the cases where drainage is demanded are getting gradually less as our ability to do complete and perfect operations increases, and for this very reason, when we do need it, the necessity for material and method that will drain becomes important. I can recall many instances where, when the drain was removed, it was immediately followed by a gush of blood, pus, or whatever the fluid to be carried off, covering patient and bedding, proving that either the method or material was faulty. These facts must be my excuse for bringing this subject before you for discussion this evening, and not that I have the one perfect method, or, in fact, anything new to present to you.

Gauze is probably used by more operators than any other material; however, remarks such as the following are often heard and

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seen in print : " Gauze will not drain." " Gauze *drainage* is a misnomer." " Instead of gauze drainage we should speak of gauze packing." These statements indicate an experience widely at variance with my own.

Since I adopted my present method, now about two years ago, I have not been disappointed in my results, and have employed drainage in cases that I would have previously closed without. Whether the route for the escape of material likely to offend be through the vagina or through the abdomen must be left to each individual case for settlement ; but, whichever one is selected, something more than simply keeping the lips of the wound apart is essential, for with a patient on her back, the way is not all down hill from all parts of the cavity to be drained to the vulva even. For my own part, I prefer to drain most cases through the abdomen for the reasons that drainage can as positively be obtained in that direction as through the vagina, and is more easily and conveniently managed. Unless the drainage material comes to or through the vulva, the best results can not be obtained, and in that case, even with the greatest care, soiling with the dejections from bowel and bladder will occur, to say nothing of the great difficulty experienced by all in rendering the vagina sterile. If prolonged drainage is necessary, the vagina can be opened at a later period if thought advisable, when the peritoneal cavity has been shut off, with little or no risk.

A glass or rubber tube will only drain from its bottom for any considerable time, the lateral holes almost at once becoming plugged by the tissues drawn into them. In fact, I believe that a tube of this kind only serves as a channel through which drainage may be forced, allowing fluid to run out when the cavity below is full to overflowing, and on removing the tube the cavity will be found full. Not so when gauze is properly used. I have never found an accumulation of fluid on removing the gauze when used after my present method.

The method to which I refer is very simple, and is as follows : A piece of gauze, plain, iodoform, or whatever variety is desired, only being certain that it is sterile, a yard wide, and of a length sufficient to extend to the deepest part of the cavity to be drained. This is then twisted as firmly as *possible*, and made to go to the bottom of the cavity without bending up on itself.

The protruding end should be left long enough to make a considerable surface for contact with the dressing outside, and it should not be constricted too tightly at the incision.



Gauze used in this manner has so far met the indications for me. If free oozing comes from points that can not be easily controlled by this one column of gauze, of course more may be packed around it in the usual manner. I have not found it necessary to do so.

The dressing on the abdomen should be moist, and not allowed to dry, as that will very materially interfere with the drain.

The chief advantages of gauze used in this way are, firstly, it will drain, and by that I mean not merely be a medium by which it can be obtained by force from behind; secondly, it will drain throughout its entire length—*i. e.*, wherever the column comes in contact with an oozing surface it will at once commence to act; and, thirdly, that primary union can almost certainly be obtained twenty-four or forty-eight hours later, when it is removed.

If drainage is needed after that length of time a fresh column smaller than the first can easily be placed, though of course the original one may be left in place much longer if it thereby meets the indications.

Gauze *will not* drain thick, creamy pus, and from its physical properties we should not expect it to do so.

The conditions most often requiring drainage outside of uncontrollable oozing of blood is encountered after the evacuation of peritubo-ovarian abscesses, in which it is impossible to remove all necrotic tissue or cover all raw surfaces, but even here after proper cleansing, there will be no pus of such character to drain before the third or fourth day, and by that time gauze as a drain will not be needed, its use being simply to keep the way open for frequent washing.

During the year ending January 1, 1896, in my service at St. Peter's Hospital, Brooklyn, I had occasion to operate on twenty-four pus cases, exclusive of several cases of general septic peritonitis; of these, I thought it best to drain twenty-one cases—a large proportion, I am aware, but each case was carefully considered before drainage was decided upon. Of these, a troublesome sinus remained in three cases. Two of these were for appendicitis following a ruptured pus tube, with localized peritonitis, and the third a case of double ovarian abscess in which the drainage canal became infected either at the first changing of the dressing, or else some necrotic tissue remained after the operation. Only one of these persisted longer than six weeks; one was operated for the removal of a silk ligature six months later, and healed without further trouble.

Two cases died of sepsis: one a ruptured ovarian abscess, and the other a double pyosalpinx of long standing and in a patient

much below par in the matter of resistance. The remaining cases I was able to close at the end of twenty-four or forty-eight hours, and secured satisfactory union by first intention.

I have not seen fæcal fistulæ follow its use, or any symptoms of intestinal obstruction.

My rule has been to drain in cases of free oozing rather than to unduly prolong an operation to control it, and in all cases where the peritonæum is soiled with pus at all during the operation, believing it safer to drain for twenty-four hours than to take any chances on the pus being sterile. The findings of the microscope may be right, and its presence a great addition to the operating room, but much depends upon who looks through it; and, too, that one or two slides are found sterile does not, to my mind, prove a like condition of the whole collection of pus.

Because the peritonæum *will* take care of an *uncertain* amount of septic and sterile material is no valid reason why we should compel it to do so. My belief is that many cases recover without drainage that would have a smoother and more rapid convalescence if properly drained.

I first saw gauze used in this way by Dr. J. D. Rushmore, of Brooklyn.

28 SCHERMERHORN STREET.